

ABSTRACT OF THE DISCLOSURE

A cross detection part detects a zero-crossing point of a reproduction signal digitalized and a phase error estimation part uses the zero-crossing point of the 5 reproduction signal for estimating a phase error thereof. At this time, a pattern detection part detects whether a variation pattern of the reproduction signal is a specified pattern (for example, a 3T pattern for the case of DVD disks) and controls a selection part to ensure that no 10 phase error estimation value of low reliability is utilized for controlling of a PLL for clock recovery.